THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF LABOR
DIVISION OF OCCUPATIONAL SAFETY
CCUPATIONAL HYGIENE / INDOOR AIR QUALITY PROGRAM
www.mass.gov/dos/iaq

MITT ROMNEY
Governor
KERRY HEALEY
Lieutenant Governor

JOHN S. ZIEMBA
Director, DOL
ROBERT J. PREZIOSO
Commissioner

WATER DAMAGED MATERIALS AND INDOOR AIR QUALITY

The Massachusetts Occupational Hygiene Program provides the following information and recommendations. Water damage to carpeting, ceiling tiles, insulation, and other materials can present problems due to microbial contamination and odor. The source of water causing the damage is a significant factor. Sanitary plumbing leaks are a clear health hazard. Water contaminated by passage through chemically treated materials or from outside puddling areas can have additional impact.

Any water damage can result in microbial growth. All that is needed for microbial growth to occur is a substrate, nutrients, warmth, and moisture. Wood, paper, some carpets and carpet backings, and other building materials and furnishings act as both substrate and nutrient. Substrates are surfaces that will trap nutrients such as dead skin cells, food crumbs, dust, dust mites, animal dander, dead insect parts and soil. This "dirt" can also contain the spores and "seeds" for such common microbiological contaminants as molds, fungi, mildews and bacteria. Sufficient moisture and adequate time for growth are often the final ingredients. Light is not always necessary and only moderate warmth (temperatures slightly above freezing) is required.

Although odors are often characteristic, they need not be present for problems to occur. Some health effects are dependent upon the airborne concentration of biological matter, the area's environmental conditions and individual susceptibility. Health problems can include headaches, eye and skin irritation, asthma, aggravation of existing respiratory conditions, other typical allergic symptoms, and hypersensitivity pneumonitis. Hypersensitivity and allergic responses can be triggered by very minimal exposure. Although children are often more susceptible than adults, there is evidence that within a contaminated environment occupants can become sensitized and responses may be intensified in individuals who are already sensitized.

Simply drying the affected areas seldom works because problems can persist after materials are dry due to residual spores and dead cellular matter from any microbiological growth. Some materials can be decontaminated readily by thorough cleaning and drying. However, most porous materials, in particular jute backings for carpets, may need replacing. Cleaning of installed carpeting is often unsuccessful due to the difficulty in thoroughly removing contamination from both carpet and padding. Some cleaning techniques leave the carpet wet enough, long enough, to allow contamination to reappear. For those areas where moisture is a periodic or a persistent problem, both non-porous surfaces and periodic inspections /cleanings are recommended. If carpeting is necessary, it should be readily removable for cleaning (i.e. carpet tiles, throw rugs).

Experts have stated that air or material sampling for microbial contamination, where evidence of gross contamination is clear, is not cost effective. Sampling would not result in any change in recommendations for remediation. Contaminated materials need to be removed and steps taken to prevent the reoccurrence of water damage.